PACE IV Core Work Area #2

Contains the following work areas:

32.00 Applications Support

32.01 Support for NETS

32.02 IT Support for Facilities and Test Directorate Business Office

32.03 IT Support for Office of Protective Services

32.04 IT Support for Launch Systems

33.00 Computing Services

33.01 Computational Science Application Support

33.02 Facilities Division IT Support

32.00 – Applications Support

Applications Support (SOW Reference 3.2)

Overall Objectives:

Provide support for all aspects of application development, including management of knowledge and information management systems, Web application development, mobile application development, desktop application development, scientific application development, database system administration, Web server system administration, application development tool system administration, and content management support on the NASA public portal.

Provide customer support, training, account management, and procurement for applications including Web Services; comply with OCIO Production Change Control Process; and adhere to standard OCIO notification processes for unscheduled outages of production services.

Specific Work Requirements:

Application Monitoring and Administration (SOW reference 3.2.1)
Provide life cycle support of enterprise and business application software in support of client/server, Web and Hyperion applications development. This includes, but is not limited to: software development tools, standard application development suites, and configuration management tools. The Contractor shall support business application software distribution on GRC's domain environment; research hardware and software upgrades. maintain system and procedures documentation; and provide client/server application development and maintenance support, including migrating applications across environments, coordination with other GRC IT groups on networking, access, and other application-related issues, performance monitoring and tuning of software, and problem diagnosis and resolution.

Provide planning, documentation, and overall support for development, test, and production application environments. The Contractor shall create application sites/instances and migrate between environments.

Obtain and install SSL certificates. Support IP access control and Windows user authentication methods. The Contractor shall support Agency designated authentication and authorization methods, including NASA's Identity, Credentialing, and Access Management (ICAM) and Launchpad. The Contractor shall support Agency and Center sponsored application development and environment initiatives.

Install, support, troubleshoot and maintain the desktop, server, web, and mobile application development suite, which includes, but is not limited to, the following: ColdFusion, PHP, ERWin data modeling software, Serena Version Manager and Subversion source control software, WordPress, Drupal, and others as recommended by the contractor and defined and approved by the Government.

All software shall be at the current vendor's version within 6 months of release unless otherwise determined. Patches that represent a significant IT security risk are to be installed in line with the policies of NPR 2810 and IT Handbook ITS-HBK-2810.04-01A, Security Categorization, Risk Assessment, Vulnerability Scanning, Expedited Patching, and Organizationally Defined Values. Potential upgrades and replacements shall be researched for potential improvements and risks. The results of the research are provided to the government for evaluation and decisions.

The Contractor shall document environment configuration and procedures pertaining to application environments. Provide environment troubleshooting and problem resolution, as necessary. Ensure that system functional is maintained during core and extended business hours.

The Contractor shall track current technologies and trends as they relate to desktop, server, web, and mobile application environment support. Provide recommendations and propose modifications to environment configuration based on analysis of these technologies and trends.

Provide support for the design, implementation, configuration, testing, operation, maintenance and user support for a centralized version control system. This system will be used for source code, documents and test results. This includes the following work:

1. Provide support for a Web-based interface to the version control system
2. Ensure backups of data in the system
3. Add/remove user accounts
4. Setting permissions and roles on user accounts, as needed
5. If possible, integrate the system with any NASA standard provisioning and authentication systems (e.g. eAuth and NAMS)
6. Providing reports on system usage including storage space used, list of users, list of projects

A. Portfolio Management (SOW Reference 3.2.2.1)

The Contractor shall support the development and maintenance of a portfolio of GRC-developed applications and websites. This portfolio will identify pertinent characteristics pertaining to the purpose, requester, development, and use of the applications and services provided.

B. Website Registration Process Support (SOW Reference 3.2.2.4)
The contractor shall support the Agency website tool and registration processes for web sites, web applications, and applications. Websites are entered and validated annually in the System for Tracking and Registering Applications and Websites (STRAW). This system requires registrants to enter information about their websites and verify that they are compliant with NASA polices. The contractor shall support the STRAW system at GRC and will assist users with their registrations and the validation of the content. Additionally, the information shall be monitored to ensure that GRC remains compliant with NASA and Center policies regarding website registration.

1. Assist users with creation of new - website, web application and application registration.
2. Assist users with maintenance and changes to existing registrations.
3. Assist users with questions. The questions range from how do I login, what needs to be registered, to walking them through the registration process.
4. Track the registration process and send reminder emails as needed.
5. Monitor the Management Approval queue and send out email reminders to approve the record. (normally it should be approved within 30 days). Inform CA of issues or registration failures.
6. Periodically run reports for overdue records and send email reminders to Responsible NASA Official and Curator.
7. Update records in STRAW as requested, for example changing a registrant name.
8. Approve account request through NAMS and then create the account in STRAW.
9. Maintain external and internal distribution lists i.e. modify new/changed registrants and application owners on lists as appropriate Create new list per request of CA
10. Maintain the list in STRAW for Policy and Content points of contact
11. Inform Web team of pending (within 30 day) Sec. 508 scan expirations
12. Run reports per request of CA

C. 508 Compliance (SOW Reference 3.2.2.5)
The Rehabilitation Act Amendments of 1998 cover access to federally-funded programs and services. The law strengthens Section 508 of the Rehabilitation Act and requires access to electronic and information technology (E&IT) provided by the Federal Government. Federal agencies must ensure that this technology is accessible to employees and members of the public with disabilities to the extent that it does not pose an “undue burden”.

Under the oversight of the Center Section 508 Coordinator, the Contractor shall support activities associated with Section 508 of the Rehabilitation Act at the GRC. This includes working with GRC organizations to complete a periodic Section 508 self-evaluation survey from the Department of Justice (DOJ) and assuring that these organizations fully comply with Section 508 when developing, maintaining, and procuring new E&IT products and services. The Contractor shall assist the GRC organizations in determining whether an E&IT product or service under review complies with the technical standards of Section 508. Provide guidance to GRC organizations in matters related to Section 508.

Individual content components must also be compliant with the mandates of the Act. In order to comply, documents, presentations, and other forms of content may need to be modified, in order to be accessible to users with disabilities. The contractor shall assist organizations and users with making content accessible.

D. Web Site Development and Maintenance (SOW Reference 3.2.3)
Provide web page development, content reviews, and training in support for GRC Web content. Web sites are currently developed in many web programming languages, including HTML, HTML5, and PHP. Future web development activities are moving to Content Management Systems, including WordPress and Drupal. The Contractor shall ensure web pages are compliant with Federal and Agency Internet policies, including compliance with accessibility requirements. Web design and development activities should align with the tenets of responsive design.

End User support requirements will vary and be defined by the customer that requested the websites. Currently, the following requirements exist and must be provided:

1. Human Capital Development Branch (HCDB) – Monitor and maintain process scripts which allow site curators to submit pages for automated upload to the web sites
2. Community and Media Relations – Provide technical support and maintenance for QC/metatagging services
3. Space Flight Systems – Coordinate interfaces of the Program/Project Management Excellence (PPME) Toolkit website with eRoom and other Center websites

E. Web Site Hosting as a Service ((Software as a Service (SaaS)) (SOW Reference 3.2.5)
Provide services and support including procurement assistance, installation, repair, upgrades, customer support, preventive maintenance, and user account management for all applications hosted by the Central Web Services Team including those used in the creation of Web content, checking quality and compliance of Web content, indexing and searching Web content, securing Web content, and applications used for providing Web site usage statistics, online calendars, and Web form information mailing.

The Contractor shall operate and maintain a suite of tools for the evaluation and management of the web environment. The suite includes, but is not limited to html validators, link checkers, web analytics tools, and site templates.

The Contractor shall coordinate services with the I3P contractors EAST, WESTPrime, ACES and NICS.

The Contractor shall support Web curators and sites on Center's Web hosting systems and assist curators in gaining access, developing, and deploying their sites.

The Contractor shall operate and maintain web content management systems (CMS), currently WordPress. Services include affinity kits, plug-ins, user management, maintenance of and changes to default configurations, transition of sites to the appropriate location (test, internal, external), and documentation and assistance with site implementations.

Provide support for application level service architecture (including security) development, investigation, installation, evaluation, testing and piloting of enhancements, replacements or additions to Web development and maintenance products, and recommend hardware/software/network configuration changes.

Install, support, troubleshoot, and maintain the Web team tools, which include:

1. Ultraseek search engine
2. GRC Transporter
3. WebEvent
4. Webalizer

5. Piwik
6. GMF (Formmail)
7. Webcheck
8. Worldspace
9. W3C Validator
10. W3C link checker
11. Linkscan
12. MySQL
13. Subversion
14. Trac
15. Wordpress
16. Python
17. PHP
18. PERL
19. Django
20. Sitescope
21. Awstats

Support new and existing users by responding to customer inquiries and troubleshooting problems associated with PACE-supported tools and services.

1. Create folders and assign user/group access permissions as needed
2. Assist with creating access control files for users
3. Provide information to users on how to acquire domain names i.e. URLs
4. Inform users of requirements to register all sites with the agency STRAW system
5. Provide troubleshooting and problem resolution services as needed.

Support the investigation, installation, evaluation, testing and piloting of enhancements, replacements or additions to Central Web Services products. Install new products or product enhancements as requested by TM. Recommend additions/changes to existing products .

F. Custom Applications Programming (SOW Reference 3.2.6)

Provide development, support and maintenance of desktop, server, web, and mobile applications on multiple platforms, including, but not limited to Hyperion and ColdFusion web based applications. The Contractor shall ensure that system functionality is maintained during core and extended business hours. Provide programming support as required to maintain the applications and data integrity within those applications and resolve data interface issues. Provide programming support to implement modifications per customer requirement changes. Provide support for replacement of applications by the NASA Enterprise Applications Competency Center (NEACC), eGov, and other initiatives including, but not limited to, data analysis, data mapping, data conversion, and documentation. Maintain existing application documentation.

The following are the current applications that need to be maintained:

1. asdfasfa
2. asfasdfads
3. All others as required

The Contractor shall perform development activities including but not limited to developing schedules, identifying resource requirements, identifying and documenting operational concepts, gathering technical requirements, creating interface designs, developing data models, coding, testing and implementing software per GLPR 7150.1, OCIO, IT security, privacy, Section 508 accessibility and other GRC requirements. Provide configuration management and release support. Provide supporting documentation in support of these requirements.

In support of the environment for custom application development, the Contractor shall operate and maintain the development environment (ColdFusion) and associated databases (Oracle). These environments are to be maintained in accordance with NASA policies.

The Contractor shall ensure system functionality is monitored and maintained and software problems are acknowledged, addressed, and resolved promptly, in accordance with identified support metrics.

The Contractor shall track current technologies and trends as they related to desktop, server, web, and mobile application development and provide recommendations based on analysis of these technologies and trends.

The Contractor shall conduct customer interviews, collect and validate requirements, determine software development cost (including annual maintenance) and schedule, and manage the project using risk-based methodologies.

End User support requirements will vary and be defined by the customer that requested the application. Currently, the following requirements exist and must be provided:

1. Office of Human Capital Management (OHCM) - The contractor shall provide support of this work during NASA`s core business hours of (morning arrival between 6:00 a.m. and 9:30 a.m.) and departure of (2:30 p.m. and 6:00 p.m.) for 8 hours daily Monday through Friday. The contractor shall provide support of daily IT operations within the Office of Human Capital Management (OHCM), including, but not limited to: End-User Support, Account Management/Maintenance, Reporting and Analysis, Training, Application and Server Troubleshooting, User Accounts & Permissions, Data Backups, etc.
2. Safety and Health Division (SHeD) - provide a broad spectrum of document-related activities including: analyzing needs, researching, interviewing, organizing, designing, writing, editing, illustrating, producing, and managing a wide range of document products. Documents provided may include: technical reports, flowcharts, e-mail bulletins, user manuals, programmer manuals, guides and reference materials. Activities may include analyzing needs, researching, interviewing, organizing, designing, writing, editing, illustrating, user-testing, producing, and managing a wide range of document products to be presented and distributed through various communications media.
3. TFOME Contract Management System (CMS) – Provided help desk services for government and contractor customers

G. Scientific Applications and Services Support (SOW Reference 3.2.7)

Provide data visualization support and development, visualization facility support, interactive visual simulations, 3D model creation, algorithm development, and scientific and visualization application development and tool support for technical computing work including high performance computing at GRC and the Agency. Provide visualization support for outreach events such as conferences and tours.

Maintain a state-of-the-art high performance computing facility.

Perform specialized system maintenance duties in the High Performance Computing (HPC) and graphics environments to assist the Center’s programs in meeting their objectives and milestones

Perform backups, user account support, monitor system utilization and ensure that all the systems software and applications are functioning properly. Perform the installation, testing, and maintenance of platform specific software. Provide these services for operating systems, compilers, parallel software tools, and software tools designed for the specific purpose of system integration

Monitor systems for optimal performance. Tune systems accordingly to achieve necessary gains in processor utilization and disk and network I/O.

Provide the installation, testing, user support, and maintenance on all the HPC and graphics systems of job scheduling and computational grid tools as well as parallel applications and tools.

Provide high-end network connectivity that will generate the I/O throughput that is required for parallel and large code development on HPC and graphics systems. Emphasis on throughput shall be placed on the testbed networks. Consideration to improved networked capabilities shall be given to the production systems once the network technology has been proven. Testing of the latest networking capabilities shall be limited to the testbed systems

Maintain a common home directory layout, appropriate network interface configuration, and NFS (Network File System) configuration and maintenance

Provide user support in parallel code compiling and parallel application runtime support across all systems in the HPC and graphics environment

Resolve user problems and questions regarding the production systems, testbed systems, and job scheduling and computational grid tools. Address inquiries and additional requests for specialized reports regarding the accounting and metrics configurations on the production and testbed systems, as well as the appropriate clustered computing environments located across the lab.

Address generally defined HPC and graphics problems or functional requirements by developing alternative technically acceptable solutions, indicating potential policy and/or operational issues, preparing implementation plans, and preparing status/procedural reports on the work in progress on the defined work area.

Maintain an internal Web based information site for the high performance testbed systems, production systems, and graphics systems. Include information on account reports, system configuration, user documentation, supported software, networking configuration, computational grid user guides and examples, and supported parallel tools including appropriate user guides and examples.

Provide user and administrative documentation for the production and testbed systems in the HPC and graphics environments. Document all procedures involved with the installation, testing, and deployment of hardware and software upgrades, hardware installation, accounting configuration, networking configuration, and parallel environment support for the production, testbed, and graphics systems.

Provide system administration support, optimize system configuration, and provide end user support to porting Unix/Linux based computer codes to the Windows environment.

Provide user support in parallel code compiling and parallel application runtime support across all systems in the HPC environment.

Resolve user problems and questions regarding the production systems, testbed systems, job scheduling and computational grid tools. Address inquiries and additional requests for specialized reports regarding the accounting and metrics

The Contractor shall provide investigative support and support the planning, implementation, integration, and migration to high-performance computing utilizing Cloud technologies when appropriate

H. Electronic Forms and Workflow Development (SOW Reference 3.2.8)

The Contractor shall operate and maintain GRC electronic forms. Provide electronic forms development and maintenance utilizing the Agency and GRC standard forms products. These typically involve a back-end database for the storage of information entered through the electronic form, with a website for tracking signature and location status. Provide electronic forms workflow development, operations, and maintenance.

I. Serve and Manage Application Licenses (SOW Reference 3.2.9)

The Contractor shall assist in the ongoing management and consolidation of GRC Software Licenses. Promote efficient management, governance, and awareness of available licenses. Utilize expert knowledge, best practices, and tools to maximize GRC's license investments.

Provide support for managing GRC's allocation of Agency licenses. The Contractor shall interface with the central authority for various Agency licenses to represent GRC's interests and convey requirements. The Contractor shall also interface with key vendors and suppliers for efficient management of licenses and license agreements. Provide license tracking and reporting services.

Provide system administration, installation, and user support for an application provisioning system including the maintenance and operation of license management servers. This includes:

a) Manage and maintain (e.g., monitor, track status, verify, audit, perform contract compliance, reassign, renew, reassign) software licenses and media through the software license life cycle
b) Work with the GRC IT vendor manager, configuration manager, specialized discipline POCs for Engineering and Scientific applications, and asset managers
c) Provide periodic and ad-hoc reports on current status of licenses and usage by user and application
d) Maintain a system to provision applications to users including a process to allow for approval by user's management, funding projects, Civil Servant Task Managers for contractor personnel, and discipline orgs for specialized applications. Integrate with existing NASA provisioning systems (e.g. NAMS), as needed
e) Periodically conduct software license and maintenance agreements reviews, allowing for sufficient time (at least 90 days) prior to expiration for discussions on renewals and discontinuance.
f) Identify and report any license compliance issues and provide recommendations to resolve the compliance issue

J. Commercial Off the Shelf Software (COTS) Configuration and Customization (SOW Reference 3.2.10)

Provide support for specialized configurations and customizations of COTS applications and software environments.

32.01 – Applications Support
Support for NETS

Support for NASA Environmental Tracking System (NETS) (SOW Reference 3.2)

Summary:

Support all IT related elements of the NASA-wide NASA Environmental Tracking System (NETS). This support is provided through the Glenn Safety and Mission Assurance Directorate. Provide dedicated resources to address user-computing issues to maintain the NETS work group computing environment, optimize computing resources, and develop integrated administrative applications in support of NASA's environmental business, regulatory, and security processes.

Support for NETS (SOW reference 3.2)

Overall Objectives:

Provide the necessary technical, programming, coordination, training, documentation, and advisory support for the development, installation, maintenance, and enhancement of NETS.

Specific Work Requirements:

All modifications or enhancements to existing applications will be accomplished to customer requirements documents and schedules.

Center standard tools will be utilized for Configuration Management of all software.

Production applications and data will be maintained separately from development and test environments.

Technical Support will be provided during and outside core business hours. Problem calls will be reported to the NETS Help Line where they will be logged and tracked by the NETS Software Support Team.

Ensure that all new NETS development complies with Section 508 of Rehabilitation Act related to the Access Board standards.

Provide Help Desk support, data administration support, and sustaining engineering to NETS application for completed phases. Provide Hardware and software infrastructure support for NETS database and application servers. Investigate and implement appropriate new technologies for NETS. This will include, but not limited to, the NETS Web Site and supplemental training media.

Provide the following support in performance of this work area:

1. Meet regularly with the NASA task manager to address work priorities to ensure consistency with NASA Headquarters Environmental Management Division and customer needs.

2. When requested, prepare and maintain a schedule for review and approval by the NASA Headquarters Environmental Management Division.
3. Work with NASA Headquarters Environmental Management Division and the NASA Centers and Component Facilities to identify the data requirements for external reports and agreed upon Agency-wide metrics.
4. Conduct analysis on identified data requirements. The analysis shall validate that the data requirements are met for external reporting and Agency-wide metrics.
5. Develop and maintain a database structure from the validated data requirements that were identified from external reports and Agency-wide metrics.
6. Continue the design and development of NETS application from the validated data requirements that were identified for external reporting and Agency-wide metrics.
7. Provide Hardware and software infrastructure support for NETS database and application servers.
8. Maintain systems fully operational Monday through Friday between 7:00 a.m. and 5:00 p.m. with system enhancements implemented outside core hours.
9. Respond to emergency fixes (correction of a system malfunction that is preventing the customer from using the critical functional requirements of the system) that effect production applications and they shall receive the highest priority.
10. Ensure modifications to the existing applications will be thoroughly tested by the programmer and customer before being released into the production environment.
11. Provide periodic status and progress reports at intervals determined by the Customer.
12. Provide all system and user documentation, as well as training as needed.

Incorporate any new reporting requirements and provide sustaining engineering for the following:

1. Cultural Resource Management module
2. Environmental Compliance and Restoration
3. Environmental Functional Management
4. EWMFR
5. EFR
6. Energy and Water Management module
7. National Environmental Policy Act (NEPA)
8. Ozone Depleting Substances
9. Pollution Prevention
10. Recycling and Sustainable Acquisition module
11. Document Management capabilities

Support for NETS XPRESS (SOW reference 3.2)

Overall Objectives:

Provide the necessary technical, programming, coordination, training, documentation, and advisory support for the development, installation, maintenance, and enhancement of the eXtensible Project Reporting, Estimating, and Scheduling System (XPRESS) application. Provide subject matter expertise related to the use of the CTC Cost Models and UDE including XPRESS software support, documentation requirements, etc.

Specific Work Requirements:

All development of the NETS Xpress Cost Estimation application will be accomplished to customer requirements documents and schedules.

Center standard tools will be utilized for Configuration Management of all software.

Production applications and data will be maintained separately from development and test environments.

Technical Support will be provided during and outside core business hours.

Provide the following support in performance of this work area:

1. Work with NASA Headquarters Environmental Management Division, the NASA Centers and other contractors to identify the data requirements for NETS Xpress Cost Estimate application. Conduct analysis on identified data requirements. The analysis shall validate that the data requirements are met for NETS Xpress Cost Estimation application.
2. When requested, prepare and maintain a deliverable schedule for review and approval by the NASA Headquarters Environmental Management Division.
3. Develop and maintain a database structure from the validated data requirements that were identified for the NETS Xpress Cost Estimate application.
4. Develop the design for the NETS Xpress Cost Estimate application from the validated data requirements.
5. Provide Hardware and software infrastructure support for the NETS Xpress Cost Estimate database and application servers.
6. All problem calls will be reported to the NETS Help Line where they will be logged and tracked by the NETS Software Support Team. Calls related to the cost models will be forwarded to Team Analysis.
7. Team Analysis shall be available between 9AM and 6PM Eastern time, Monday through Friday excluding holidays, to field questions related to the use of the CTC Cost Models and UDE including XPRESS software support, documentation requirements, etc. To this end, the Contractor will provide a toll free helpline for NASA RPMs/HQ and other direct support to NASA Users as needed. This effort also includes work to ensure the proper tracking, recording, and reporting of all support related issues and their solutions for NASA Headquarters review.
8. Maintain systems fully operational Monday through Friday between 7:00 a.m. and 5:00 p.m. with system enhancements implemented outside core hours.
9. Respond to emergency fixes (correction of a system malfunction that is preventing the customer from using the critical functional requirements of the system) that effect production applications and they shall receive the highest priority.
10. Ensure modifications to the existing application will be thoroughly tested by the programmer and customer before being released into the production environment.
11. Provide periodic status and progress reports at intervals determined by the Customer.
12. Provide all system and user documentation, as well as training as needed.
13. Provide on-line and help-line support to NASA RPMs/HQ especially during liability-estimating submission periods and otherwise as needed throughout the year. This support provides RPMs/HQ with useful and relevant information, live support, problem solutions, and the ability to provide and receive feedback.
14. Be available upon request to host or participate in or even initiate WEBEX sessions to assist RPMs with their estimating work or resolve specific problems related to presenting estimates in XPRESS. NASA WEBEX accounts funded by HQ will be used for this purpose.

32.02 – Applications Support

IT Support for the Facilities and Test Directorate Business Office

IT Support for the Facilities and Test Directorate Business Office (SOW Reference 3.2)

Summary:

This work area provides overall IT support for the Maximo Computerized Maintenance Management System (CMMS) at GRC. It requires a wide range of technical expertise including Server, database and web server administration, Maximo administration, Maximo application development, integration, reporting and security.

IT Support of the Maximo Computerized Maintenance Management System (CMMS) (SOW Reference 3.2)

Objectives:

Provide continued support for the operational components of the GRC Production, Train, Development and Test Maximo environments including installation, configuration and IT security. Organizations directly supported include Code F Testing Division, Facilities Division and Plum Brook Station. This work area also indirectly supports all of Lewis Field and Plum Brook Station, to the extent that all GRC personnel have access to Maximo as potential work requesters.

Responsibilities will include support for the overall operational components of the GRC Maximo CMMS environments. This includes hosting, installation, application, configuration, reporting and IT Security. Code F personnel will provide first tier user support and troubleshooting. Assistance will be provided to the TM as requested for application end user support and Maximo issues analysis.

Specific Work Requirements:

Provide hardware server installation and upgrades; H/W maintenance and backups, operating system installation and upgrades. This consists of system administration of Microsoft (MS) Windows Server 2008 and VMware ESX systems and includes installation, configuration and maintenance of all GRC Maximo environments. PACE will coordinate all hardware issues through the established hardware support contracts.

Provide IT security document requirements/modifications. This consists of system security plan development and maintenance in coordination with the GRC IT Security Program office and adherence to NASA Agency security requirements. Provide support to meet the Agency and Center system security plan objectives and requirements.

Provide data storage retrieval and archival of GRC Maximo systems. Backup and restore capabilities to include daily incremental, weekly, monthly and disaster recovery.

Provide Maximo installation infrastructure support. Include installation of approved patches, service packs, and new releases of supported applications.

Provide Maximo software maintenance and updates, ensuring compliance with NASA and GRC IT security requirements, compatibility, licensing, intellectual property rights, user account management, and contingency planning.

Provide support to maintain the current baseline functionality of the existing applications and configuration (including but not limited to integrations, workflows, reporting and security).

Provide support to maintain Oracle schemas and WebSphere. This includes:

1. Standard Oracle database software maintenance and support covering maintenance upgrades and patches, database backup and recovery, problem diagnosis and documentation.
2. Create and maintain Oracle Application schemas as required for the GRC Maximo implementation for all Database environments.
3. Provide WebSphere administration in clustered and non-clustered environments. This includes support for the development, test and production environments.

PACE will work closely with the Business Management office to define, create and manage Maximo security groups.

Systems shall support and implement emerging Agency infrastructure elements as they are made available, including NCAD, NAMS and eAuthentication.

Provide a secure SSL transmission to encrypt traffic between the clients and the server

Work closely with the Business Management Office to review current and future requirements. Support for any additional systems/applications will be coordinated with the Business Management Office management based on availability of resources and funding.

Provide modifications or enhancements to existing applications that will be accomplished to customer requirements, documents and schedules.

Production applications and data will be maintained separately from development and test environments.

Technical Support will be provided during and outside core business hours on a best effort basis based on available resources.

Systems will be fully operational Monday through Friday between 8:00 a.m. – 5:00 p.m. with system enhancements implemented outside core hours. Note that the Maximo CMMS is used during all hours and weekends by three shifts.

Respond to emergency fixes (correction of a system malfunction that is preventing the customer from using the critical functional requirements of the system) that effect production applications and they shall receive the highest priority based on available resources.

Provide periodic status and progress reports at intervals determined by the Customer.

Provide assistance/backup to the primary administrator to troubleshoot user problems and provide information and guidance to users as requested by the primary administrator.

Provide research as requested by the primary administrator to determine the status of existing functionality and to determine the initial impact of changes being considered or proposed. Extensive research related to potential separate work is not included and will be performed and estimated as part of those separate IDIQ task orders.

Provide up to 10 hours of informational WebEx sessions for Code F personnel as needed. Availability and scheduling will be coordinated with the Business Management Office.

Provide Oracle Database Administration services in support of the Maximo CMMS environment. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration and backup and recovery. Oracle database schema support is also provided as required.

Provide BIRT, QBR and SQL report writing capabilities for Maximo as required to support existing Maximo configuration.

Maintain Oracle views to support back-end Maximo table access for Microsoft Access querying.

Technical and Administrative IT Support for the Facilities Division, Facilities Operations and Maintenance (O&M) Branch (SOW Reference 3.2)

Overall Objectives:

This work area will provide IT technical and administrative services to support several ongoing initiatives associated with the Glenn Research Center/Lewis Field institutional operations, repair, and maintenance activities. The work requires a working knowledge of multiple Computerized Maintenance Management System (CMMS) software packages used for managing maintenance within GRC. These CMMS software packages are:

1. Maximo Asset Management 7.1.1.7 (IBM, Incorporated)
2. Capella (Customized business management software developed by Call Henry, Incorporated). Access to this database will be restricted to a “read-only” capability.
3. MP2 (GRC Legacy Asset Management system)

In addition to the above CMMS knowledge, the work requires a working knowledge of Microsoft Excel, Word, and PowerPoint.

Specific Work Requirements:

Provide analysis and support to improve the existing Maximo database, “CMMS of Record,” to become a more accurate repository for all current and future maintenance activities. This includes the following activities:

1. Provide assistance to the GRC O&M personnel in the visual verification of existing physical assets in all buildings and systems at Lewis Field.
2. Provide cross-checking of the asset information gathered above with the records that currently reside in the Maximo and Capella databases.

3. Provide assistance to the GRC O&M personnel with correcting existing asset information. Work with the GRC Maximo team to upload missing asset information, and/or deleting incorrect asset information from the Maximo database.

Provide assistance with the identification and extraction of data from the various GRC CMMS systems, (Maximo, Capella and MP2) and the creation of Excel spreadsheets to provide a history of Trouble Calls and Repairs over the last ten (10) fiscal years.

Provide advice and assistance to GRC O&M personnel on developing new processes for batch uploading of asset information into the Maximo database.

Provide advice and assistance to GRC O&M personnel on developing bills of materials for assets that can be uploaded into Maximo.

Provide advice and assistance to GRC O&M personnel on how best to capture and store information in Maximo resulting from the Reliability Centered Maintenance (RCM) Program. To include analysis of assets, work instructions, work orders, and failure codes.

Provide advice and assistance to GRC O&M personnel to store missing Scheduled Start Dates and Scheduled Finish Dates on institutional PM, PGM, and PT&I work orders.

Provide advice and assistance to GRC O&M personnel on how to improve the Maximo CMMS interface/screen design.

32.03 – Applications Support

IT Support for the Office of Protective Services

IT Support for the Office of Protective Services (SOW Reference 3.2, 3.3)

Summary:

Provide IT support to the NASA Glenn Office of Protective Services. This will include but not be limited to support for the Security Information Management System (SIMS) and Velocity applications relating to Systems and Database Administration, the Agency's EPACS system at GRC, PIV II Systems and Lenel Onguard video recording services. PACE will provide support with systems security plans as requested and agreed upon.

Support and enhance the production Safeguards NASA Agency-wide web application site for use by the agency (Counterintelligence) Office. PACE will provide all necessary application and database support for the ongoing support and enhancement of the systems. Enhancements include providing additional reporting upon request as well as customized briefing and debriefing content for each NASA center.

Overall Objectives:

Provide Microsoft (MS) Windows Server administration, MS SQL Server and Velocity administration services in support of the GRC and NASA credential issuance and access

control.

Provide Microsoft (MS) Windows Server administration, Oracle database administration and ColdFusion administration services in support of the SIMS environment.

Provide technical support for NASA EPACS at GRC which will consist of maintenance for Regional Administration assistance, center premise equipment deployment and support, monitoring, engineering services, and technical support of a Lenel OnGuard Access Control/Intrusion Detection, Badging environment and support for video recording services for up to 100 cameras at GRC.

Provide technical support for NASA PIV II and associated Identity and Account Management systems in support of the Agency Homeland Security Presidential Directive 12.

Provide IT security document requirements/modifications. This consists of system security plan development and maintenance in coordination with the GRC IT Security Program office and adherence to NASA Agency security requirements. Provide support to meet the Agency and Center system security plan objectives and requirements

Support and enhance the production Office of Protective Services applications (CX00). PACE will provide all necessary application and database support for the ongoing support and enhancement of all systems.

Support and implement the decommissioning of the Hirsch Velocity Access Control and Intrusion Detection Systems (ACS/IDS); pending sale of buildings under system support.

Provide technical support for five OPS Emergency Management System Laptops at GRC which includes Microsoft (MS) Windows workstation administration, PowerBuilder/InfoBase application database supporting Emergency Management Operations, maintain Windows updates limited network access, maintain antivirus and other software updates. Backup image copies will be supported for Disaster Recovery purposes and the laptops will be rotated between GRC and PBS on a monthly basis.

Provide Windows 2003 Server Administration services in support of the Velocity and ACS/IDS environment for unclassified/unrestricted areas. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration and backup and recovery. This applies to both GRC and PBS. Support Velocity badge issuance at both Glenn and Plumbrook.

Provide Oracle Database Administrative Services for the Security Information Management System (SIMS) during all phases of the software development lifecycle.

Provide problem diagnosis, repair, fixes, preventive maintenance services, upgrades, planning, documentation, and overall support for development, test, and production environments.

Provide Windows 2003 Server Administration services on the SIMS server. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration and backup and recovery.

Provide ColdFusion Administration services on the SIMS application. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration, security, deployment and backup and recovery. Provide ColdFusion application development services

on an as needed basis per other direct charges (ODC) directed by the customer. Objectives will be defined with the customer and addressed based on available funding.

Provide support for ongoing operation of a GRC EPACS Lenel OnGuard Regional Environment. This will include engineering support, EPACS Regional Server Administration services in support of Lenel badging, ACS/IDS and interfaces to associated Agency applications. This will also include the support of associated GRC Lenel client workstations at Plum Brook, Dispatch, Badge Control and where ever deemed appropriate as the environmental and Agency requirements consider necessary.

Provide Windows 2008 Server Administration services in support of Lenel Network Video Recorder (NVR) software on three physical servers.

Provide Windows XP Server Administration and Pelco Digital Video Recorder (DVR) administration located at Plum Brook Station.

Provide technical support and configuration expertise and maintain standard for all cameras.

Provide Network Attached Storage Disk Array service and support for the Lenel NVR data repository.

Provide IT assistance to the Smart Card, EPACS, and PIV II initiatives as they relate to this work.

Meet Agency and Center security plan objectives and requirements as outlined in applicable NIST controls and NASA Policies and Guidelines.

Provide ongoing support and maintenance of the Office of Protective Services application and data systems web sites during and outside normal business hours, and during critical deadline processing. Enhancements as presented by the user will also be included in this support as funding permits.

PIVMAN pilot project will take six months and require implementation, training and development during that time.

Analyze, design, develop and implement additional data and functional requirements for the Office of Protective Services as agreed upon.

Manage the 5 Emergency Management laptops (1 Plum Brook/ 4 at GRC) which includes, monthly Anti-virus updates, Microsoft OS critical and Security updates, Microsoft software patches (IE and Office) (monthly). Updates are applied via GRC wireless Guest Network (primary means to provide updates) while supporting update backup procedure that includes using existing OPS D Link Verizon Air Card. While the data is static or easily recovered a system image is performed with the use of Shadow Protect to restore the machines in the event of a system crash. The systems are rotated between GRC and PBS on a monthly basis and are supported by the SIMS Security Plan which is reviewed and updated annually.

7X24 on-call support will be provided outside of the normal core business hours.

Provide ongoing support and maintenance of the Safeguards the NASA Counterintelligence Office web application sites during and outside normal business hours, and during critical

deadline processing. Enhancements as presented by the user will also be included in this support as funding permits.
Analyze, design, develop and implement additional data and functional requirements from the Counterintelligence Office.
Provide additional links to customer identified websites.
Provide capability for customer to modify, add, or delete portions of the web application sites contents.
Provide support for interface with eTravel software.

32.04 – Applications Support

IT Support for Launch Systems Project Office

IT Support for Launch Systems Project Office (SOW Reference 3.2, 3.3)

Summary:

Provide overall IT support to the Launch Systems Project Office. This will include but not be limited to support the implementation and administration of an Enterprise Project Server 2010. Provide overall systems analysis and server support to Launch Systems Project Office. Provide appropriate backup administration support within the Launch Systems Project Office. Assist with the Launch Systems Project Office systems security plans as required.

IT Support for Launch Systems Project Office (MB) (SOW Reference 3.2, 3.3)

Overall Objectives:

Maintain Enterprise Project Server 2010 installation including developmental, test and production implementations. These implementations involve the configuration and setup of hardware and various software products as dictated by the design plan for integration with the PPME Toolkit. They include the following major software products: Windows Server 2008, VMware virtual machine, SQL Server, SharePoint 2010, and Project Server 2010. Requirements gathering and analysis with major stakeholders and end-users will be performed. End user training and documentation will also be provided.

Specific Work Requirements:

1. Provide System Administration, Microsoft (MS) Windows Server and VMware administration services, in support of the Enterprise Project Server 2010 pilot, and subsequent development, test and production installations. A total of three environments will be supported, developmental (sandbox), test and production installations. This will include installation, configuration, maintenance and backup and recovery of Microsoft (MS) Windows Servers.
2. Coordinate all hardware issues through the established hardware support contract.
3. Provide standard Microsoft SQL Server database maintenance and support covering maintenance upgrades and patches, database backup and recovery and, problem diagnosis.
4. Work with Project Server consultant(s) and TM to implement an Enterprise Project Server 2010 pilot and continue with developmental configurations.

5. Provide support to meet the Agency and Center system security plan objectives and requirements (Relating to Code V's ESAS IT Security Plan requirements).
6. Provide requirements gathering, technical and functional configuration, report development and training-related activities for the Project Server 2010 implementation.
7. Provide installation and post installation support activities for SharePoint Server 2010, Project Server 2010, Excel Services, Performance Point Services, Secure Store Services, SQL Reporting Services and Analysis Services.
8. Provide support to configure Project Server 2010 according to user requirements.
9. Provide support for the development of reports to satisfy end-user requirements.
10. Provide role based training and training documentation based on requirements.
11. Data Entry services for manual update of rate fields in the RLS [Resource Loaded Schedule database] in the Project Server 2010 system.
12. Follow on support for Translator Applications that port data between Microsoft Project/Project Server and Microsoft Excel into government defined data templates.

Space Flight Systems IT Admin and POC Support (SOW Reference 3.3, 3.9.2)

Overall Objectives:

The Space Flight Systems Directorate, in the implementation of multiple projects for the agency, requires support for the management of the electronic data resources utilized by the projects.

Specific Work Requirements:

1. Point of Contact (POC) for ACES/I3P contract as applicable
    a. Maintain proficient knowledge of the ACES/I3P contract and insure Code M compliance. Review and analyze specific ACES/I3P trouble reports and work proactively to minimize the impact on Code M personnel and operations.
    b. Assist with Seat management and sign up for new and existing employees.
    c. Assist with seat management and sign up for temporary systems (e.g.: summer students, visiting faculty, etc.).
    d. Advise CS and WYEs associated with Code M of seat options under ACES/I3Ps to insure systems selected meet the users need.
    e. Maintain and update applicable data bases associated with the tracking of ACES and I3P equipment.
    f. Assist in the coordination of moving seats during physical relocation of Code M CS and WYEs.
    g. Assist in set ups and reassignment of seats with ACES/I3P, including telephone devices (Fax machines, desk phone, cell phones, etc.).
    h. Provide user advice during upgrades of systems.
    i. Review all ADP purchases, verify and review purchases have the appropriate classification and/or justification. Verify ACES/I3P requirements as met as applicable.

2. Support for machines that are non-ACES/I3P, NADS, or MA.
    a. The type of machines that could be supported include: video capture systems, data monitoring devices, data analysis systems, data capture systems.
    b. Hardware support for machines classified as NADS or MA will be supported by ACES/I3P, but this work will provide software support for these items. For machines classified as "non-ACES/I3P" provide both hardware and software support.

c. Load software and install unique hardware associated with items identified above.
d. Install and maintain network connectivity issue with the above machines when necessary.
e. Assist in troubleshooting any machines that ACES/I3P determines are outside the scope of the contract.
f. Provide expert advice in selection of hardware and software for lab computers.

3. Software Support for Unique applications.
    a. Provide support for Non-ACES/I3P supported commercial software.
    b. Provide support and advice for custom written software applications and or programs. Test software as required in the ACES/I3P test labs to insure compatibility.

4. IT Security Functions
    a. Provide support to directorate by serving as OCSO (Organizational Computer Security Officer).
    b. Advise Code M management of IT Security issues affecting the Directorate.
    c. Prepare IT security plans and procedures as required for Code M systems.
5. Provide administration for Code M virtual servers. Administering the directories and application/database environments.

6. Maintain domains for lab computers, notebooks.

33.00 – Computing Services

Server and Software Support for SCaN Testbed Project (SOW Reference 3.2, 3.3, 3.9.2)

Description

Provide IT support for the SCaN Testbed Project software. This will include Linux system administration, backup applications, and security plan support.

Provide support to meet the Agency and Center system security plan objectives and requirements.

Specific Work Requirements:

1. Provide Linux Server Administration services in support of the SCaN Testbed Project. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration and backup and recovery.
2. Provide System Administration, Linux Server administration services, in support of the SCaN Testbed Project. This will include installation, configuration, maintenance and backup and recovery of Servers/Workstations to support SCaN Testbed Project Application systems. PACE will coordinate all hardware issues through the established hardware support contract.
3. As this is a customized COTS software package, system upgrades/modifications must be coordinated with the vendor.

4. PACE will apply all patch updates and security policies as permitted by the current supported version of the SCaN Testbed Project system and application software with concurrence from the vendor.
5. Provide general backup application administration support. Assistance with the daily administration, security administration and troubleshooting will be provided to the Primary SCaN Testbed Project administrator. Additional funding may be required if higher level support is needed.
6. During Critical Phases of the project (as defined by the TM), backup mechanisms to restore the SCaN Testbed Software Server to service must be implemented in order to reduce down-time and project risk within acceptable levels. These mechanisms shall be cost-effective and proven.
7. The current expectation is that the project will be in the non-critical mode of operation for this fiscal year. Resources will be allocated for this mode of operation.
8. Provide support to assist with the local SCaN Testbed Project security plan.

Assumptions:
All work is performed onsite and that network connectivity, hardware, and software engineering tools are provide by NASA GRC.

Systems Support (SOW Reference 3.3 and 3.2)

Summary:
Provide Database and System Administration services in support of enterprise and business applications. Services include web systems support, security administration, specialized printer support, IEMP security support and computer administrator support to the Glenn Research Center.

This work covers Systems Support for the following environments:
1. Enterprise Administration
2. WADe, Client/Server and Commercial Off the Shelf (COTS)

WADe, Client/Server and COTS Support (SOW Reference 3.2, 3.5)

Description:

The scope of this work area includes Web Application Development Environment (WADe), and Hyperion application hosting, development, and support.

Objective 1:
Maintain up-to-date, reliable, and secure web application development (WADe) environments. Support software tools, policies, and procedures as they pertain to these environments. Provide assistance to developers in application development activities as needed.

Objective 2:
Develop, support and maintain up-to-date, reliable and secure database schema environments. Objective 3: Support Hyperion environments, ensuring adequate performance and security. Agency Initiatives: Support Agency initiatives as they are developed and implemented at GRC, including but not limited to, NAMS, NCAD, eAuth, and SmartCard with exceptions agreed upon by the NASA GRC Technical Monitor (TM).

Specific Work Requirements:

GRC Standards and Policies:

1. Software changes and upgrades shall be implemented in accordance with GRC configuration management requirements and performed within GRC approved maintenance windows, unless an exception has been approved by the TM.
2. Work Prioritization: All work including major environment changes, upgrades, and service enhancements are agreed to by and prioritized in conjunction with the TM.
3. Projects: A project is a defined as a grouping of tasks to accomplish a specific goal. A project is not created because of any particular level of cost, hours, or scope. A project may be created for an item of management interest or because the TM has a need to track the specific tasks involved.
4. Deliverable Deadlines: Project milestones and on-going tasks are expected to be completed on-time. Changes to due dates can only occur with approval of the TM.
5. Documentation: Documentation requested by the TM shall be complete, accurate, and useful.
6. Procurements: Software purchases and licensing shall be coordinated with the TM.
7. Monthly Reports: Monthly reports will contain the following information:
    a. Actual hours expended per Objective and Project.
    b. Overview of activities performed during the month and recommendations for next month's activities.
    c. Data supporting each of the metrics. Quantity and format of the data shall be determined in conjunction with the TM
8. Availability: All environments/ schemas shall be operational 24 x 7, excluding approved maintenance windows and other system outages.
9. Software Version: Software will be at the current vendor's version within 6 months of release unless otherwise agreed upon by the TM and PACE.
10. Meeting Attendance: PACE will be represented at team meetings unless agreed to by the TM.

Specific Work Requirements:

1. Security: Support security plan development and maintenance in coordination with the GRC IT Security Program office
    a. Implement security controls required to maintain authority to operate NIST Moderate level systems
    b. Implement and enforce all NASA IT security policies
    c. Attend security plan meetings, if requested by TM
    d. Provide input to security plan and supporting documentation
    e. Support security audit and review activities
    f. Address outstanding Certification and Accreditation POA&Ms, ensuring completion by required dates.
    g. Apply all security-related software patches as required by GRC and NASA
    h. Monitor systems, logs, and software configurations on a regular basis, as agreed upon by the TM
    i. Provide support for application developers to properly secure applications and assist them in development of application related security documentation
2. Response Time: WADe site and schema creation/modification requests are completed within sixteen hours of receipt, provided no issues with provided data model exists, unless otherwise determined by TM. Requests defined as urgent by the TM are completed within four hours of receipt within extended coverage hours.
3. Hours of Coverage: Extended Coverage 8:00 a.m. to 5:00 p.m. EST.

Objective 1: WADe

CORE:

1. Install, support, troubleshoot, and maintain the WADe application development software suite, which includes:
    a. ColdFusion
    b. Flex
    c. ERWin data modeling software
    d. PVCS or other designated source control software
    e. Web CMS
    f. Others, as requested by the TM.
    g. Software will be at the current vendor's version within 6 months of release unless otherwise agreed upon by the TM and PACE.
2. Support WADe application development process
    a. Up to 75 production application sites
    b. Create application sites and migrate between environments
    c. Obtain and install SSL certificates
    d. Support IP access control and Windows user authentication methods
    e. Support eAuthentication initiatives
    f. Provide troubleshooting and problem resolution services as needed

TRAINING:

Training provided in Oracle database administration / ASP/.NET support and administration for enhancement of staff knowledge.

Objective 2: Database

CORE:

1. Develop, modify, troubleshoot, and maintain database schemas in all environments
    a. Up to 100 schemas
    b. Includes schema development, modification, maintenance and deletion
    c. Oracle, mySQL, and SQL Server platforms
2. Provide data modeling services as requested, not to exceed 100 hours.
3. Provide database access control and security administration where required. This includes support in implementing Agency authentication initiatives.

PLANNED PROJECTS:

Support the development of a common login procedure for WADe, including development of Oracle stored procedures or new database schemas if needed.

Objective 3: Hyperion

CORE:

1. Support Hyperion software environment and provide assistance to users and developers where needed
2. Support shall not exceed 100 hours. Software upgrades are excluded from this support effort due to the limited hours allocated.

Assumptions:
Modifications will be required with appropriate funding when a request to exceed the specified schema and application site counts.

Software maintenance must be kept up to date in accordance with support metrics. Additional/unexpected work relating to Agency initiatives may require additional funding to be negotiated between PACE and the TM.

GRC Hosting (SOW Reference 3.2.5)

Summary:
Provide Centralized Hosting services focused on providing a modern, reliable and cost effective infrastructure for GRC applications. In addition, this work will assist GRC in moving away from non-integrated hosting infrastructures toward a more efficient and functional hosting infrastructure. The work area will also be cognizant of emerging Agency and commercial hosting capabilities and leverage those capabilities when and where appropriate. There are two overall objectives for this work.

Objective 1 - Operations:
This work area will focus on operating existing GRC infrastructure, complying with IT security controls, defining common administrative processes and roles, consolidating servers, and generally finding and implementing operational efficiencies across the infrastructure.

Objective 2 - Development:
This work will involve the development of the future hosting services environment. It will work toward fully garnering the benefits of modern hosting capabilities. This is to include virtualization software capabilities that offer consolidation, transparent migration of applications between servers, regardless of location, replication, high availability configurations, etc. These features can reduce application downtime due to planned power outage or failed components. In addition, working towards the development of an alternate processing site which is required by many of the GRC contingency plans will be pursued. One of the many initiatives will be to focus our resources to develop common solutions to these and other common problems is a key benefit of this work area.

Specific Work Requirements:

Operational support shall include:
1. General – All services falling within the scope of this work shall meet the following requirements.
    a. Staff availability
        i. Hosting staff shall be available during normal business hours (8 a.m.-5 p.m.)
        ii. Hosting staff shall be on-call 24x7.
    b. Systems shall integrate with GRC and NASA internal and external services networks, including firewall and VPN with exceptions agreed upon with NASA GRC Technical Monitor.
    c. Systems shall support and implement emerging Agency infrastructure elements as they are made available, including but not limited to, NCAD and SmartCard
    d. Systems shall meet all security requirements in coordination with the GRC IT Security Program Office and GRC ITSM/AO acceptance of residual risks.
        i. Implement security controls required to maintain authority to operate NIST Moderate level systems.

ii. Implement all NASA IT security policies required to meet security plan

e. Systems shall implement all security related system patches as required by GRC and NASA

f. Production System changes shall be implemented in accordance with NASA GRC configuration management requirements

g. System maintenance shall be performed, whenever possible, within NASA GRC approved maintenance windows

h. Major system changes, upgrades, service enhancements, etc. are agreed to by and prioritized in conjunction with the NASA GRC Technical Monitor

2. Server Services - Provide and support dedicated server, shared server, or VM environments, and associated storage environments, suitable for file sharing, application hosting, and web application and web site development and hosting:

a. Support for multiple operating system environments shall be provided

b. All operating system related services excluding OS related application support shall be provided

c. Internet Information Server (IIS) or other suitable web server shall be installed, configured and supported, if required

3. Database Services

a. Provide and support database instances including, but not limited to, the following platforms

i. Oracle (development, test, production)

ii. MS SQL Server

iii. mySQL

4. Software Support

a. Major releases of vendor supported software shall be implemented within agreed upon schedule with the GRC Technical Monitor.

i. Virtual machine software

ii. Operating system and operating system related software

iii. Database software

b. Software releases that provide required bug fixes shall be implemented within agreed upon schedule with the GRC Technical Monitor.

c. Software purchases and licensing shall be coordinated with NASA GRC Technical Monitor

i. Provide input and recommendations in support of a documented software refresh schedule.

5. Hardware Support

a. Perform hardware support and troubleshooting in conjunction with current vendor maintenance contracts

b. Upgrade hardware as needed, based on existing refresh schedules, go-to architecture, and identified problems accounting for government budget considerations and future plans

c. Hardware purchases and licensing shall be coordinated with the NASA GRC Technical Monitor

i. Provide input and recommendations in support of a documented hardware refresh schedule.

6. System monitoring and proactive augmentation

a. All operational systems shall be monitored to the extent possible based on limited resources

7. Backup/Restore
    a. Systems shall include a backup capability that meets the following criteria:
        i. Daily incremental backups
        ii. Periodic full backups
        iii. Offsite backup storage
        iv. File restoration
        v. Service
        vi. Backup and restore capabilities shall meet the requirements for NIST Moderate systems in coordination with the GRC IT Security Program Office and GRC ITSM/AO acceptance of residual risks.
    b. Specific backup criteria, including frequency of full backups and restoration times, will be determined based on individual system requirements.
    c. Provide Implementation and support for any backup hardware and software required to meet the above requirement

8. Virtualization
    a. Utilize, and make improvements to, existing virtualization environment where feasible, based on existing resources

9. Security plan development and support
    a. Attend security plan meetings
    b. Maintain hosting environment security plan and supporting documentation
    c. Support security audit, review, and mitigation activities

10. Provide limited KWI system level support
    a. Provide technical OS system administration relating to operational application support for both production and development systems
    b. Provide service problem identification and resolution including monitoring, problem diagnosis, and problem resolution
    c. Provide capacity planning support
    d. Provide monitoring of system resources to forecast performance degradation at the application level. (i.e. Zenoss, PowerAdmin, Nagios, etc.)
    e. Provide Data Migration activities support
    f. Provide Database Application related support activities
    g. Provide archival assistance to the KWI support team
    h. Provide support for prioritized eRoom activities as described and listed below

11. Provide two Linux Virtual Machines in support of Code M Summer Student project. These will function as development environments for the students.
    a. Provide two secure Linux OS environments.
    b. Support a web server environment.
    c. Database services have been declined in order to save on costs.
    d. Backup services have been declined in order to save on costs.
        i. Provide File Services support for organizations throughout the Center.
        ii. A table of all hosting service customers with subscription information will be maintained and made available in eRoom for tracking and billing purposes for the TM.

Development support shall include:

1.Analyze the current state of code V hosting

a. Business requirements
b. Applications hosted
c. Physical servers
d. Virtual servers
e. Storage management (databases and filesystems)
f. Service level requirements
g. Administrative tasks/roles

2. Develop the “go to” state

a. Physical server consolidation considerations
    i. Security levels (low, mod, high)
    ii. Network access (inside, ESN, etc..)
    iii. Development / test / operational
b. Virtual machine strategy
c. Storage subsystem
    i. Filesystems
    ii. DBMS
    iii. Backup integration
d. Develop feature options driven by business requirements
    i. Data protection (backup) options
    ii. Continuity of operation options
        1) In the event of a building 142 power outage
        2) In the event of a GRC main campus outage
    iii. High availability options
    iv. Improved monitoring (centralized logging and automated mechanisms)
    v. Improvements on other security controls
    vi. Extensibility to other application areas (outside of V)
e. Business case for design components
    i. For each major component in the “go forward plan” document
        1) How much does it currently cost
        2) Roll out cost and schedule (acquire hardware/software and implement into operational environment)
        3) Ongoing operational and support cost
        4) Business benefits
        5) Efficiencies obtained
        6) Time to recoup investment

f. Operations strategy
        i. Administrative roles/tasks
        ii. Security controls driver
        iii. Operational efficiency opportunities

Based on resource availability, implement design components as prioritized and agreed to by the TM.

Additional funding is being provided to perform the following items:
Enterprise Systems and Support (ESAS) IT Security Plan Items needing additional support

- Additional time to keep current with Patches (OS, Web Server, DB)
- Develop Baseline Configurations for systems
- Additional time needed to implement CIS benchmarks (OS, Web, DB)

- Complete various Security documentation (Ops manual, Contingency Plan, Deviation lists)
- Additional resources need to address PO&AM`s and System Vulnerabilities in a more timely manner.
- Additional resources needed to develop/execute/report CISCAT procedures
- Address new security requirements as identified by the GRC IT Security Office.

ESAS General

- Additional time needed to manage growing hosting services environment
- Develop streamlined standardized hosting processes and documentation. (i.e. template development)
- Investigate/evaluate virtualization backup vendors and strategies
- Develop Datacenter ESD knowledge articles (File Services, Hosting Services, etc)
- Develop Zenoss System Monitoring reports

Assumptions:

a. The estimated current level of effort identified within this proposal is not reflective of actual scope defined within this work and is based on a best effort approach. A study of this Hosting services and virtualization task has determined the shortfall of resources to be approximately 3 WYE's.
b. The acknowledgement of critical calls for large user base will be dependent appropriate staffing levels and the establishment a helpdesk function to record and track incidents. This will be coordinated with the Task Monitor.
c. Modifications will be required with appropriate funding when a request to exceed the specified server or database maximums.
d. The IT Security systems identified within the NASA applications area table have minimal resource allocations assigned due to limited funding.
e. All hosting environments are expected to be consistent in size, scope and customer usage. Support above and beyond the generic hosting service is expected to be funded within the scope of a system application support work.
f. All hardware and software will be GFE
g. Hardware infrastructure upgrades will be made as required in accordance with task support upgrades.
h. Hardware and software maintenance must be kept up to date in accordance with task support metrics.
i. Prediction of resource saturation will be limited to level of resources reserved for capacity planning, procurement of hardware infrastructure upgrades and procurement of and support of system monitoring tools.
j. Storage capacities for virtual machines identified within a customer tracking spreadsheet that will be stored in the Data Center eRoom will have been rolled into core infrastructure storage.

IT Discovery & Application Mapping Service (IDAMS) (SOW Reference 3.3.4)

Overall Objectives:

Provide the IT Technical support necessary to operate the IDAMS hardware and software environment at GRC. The IDAMS environment is made of both hardware and software and its purpose is to provide an automated means to collect server hardware and software inventory and associated system configuration information needed to facilitate the Federally mandated Data Center Consolidation goals. HP's Universal Configuration Management Database

(UCMDB) and Discovery and Dependency Mapping (DDM) tool has been selected by the Agency to help meet this goal.

Specific Work Requirements:

1. Provide support to install and configure IDAMS hardware. Which includes, one Application Server, one Database Server and up to three probe servers.
2. Provide Windows 2008 Server Administration services in support of the IDAMS software environment. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration and backup and recovery.
3. Provide MS SQL Server Administration services in support of the IDAMS software environment. This will include preventative maintenance, problem diagnosis, repair, fixes, upgrades, configuration and backup and recovery.
4. Provide support of the HP UCMDB and DDM COTS software according to Agency requirements. This will include maintenance upgrades and patches, configuration, backup and recovery and problem diagnosis.
5. Perform hardware and software installation of IDAMS Remote Probes, based on NASA GRC firewall locations and Agency requirements. The actual number of remote probes supported will be dependent on available resources and funding.
6. Provide configuration support of the HP UCMDB Remote Probes.
7. Installation and configuration of an IDAMS UCMDB test and development environment on a virtualization system. The agency will provide the UCMDB software, and NASA GRC will provide the Windows Server and SQL Server software.
8. Attend Agency IDAMS training as required.
9. Attend Agency IDAMS meetings.
10. Establish and maintain a list of applications to map into the HP DDM software as applications are identified.
11. Provide IDAMS DDM report configuration and scripting.
12. Apply all MS Windows, Microsoft SQL Server, and IIS patch updates and security policies as required by Agency IDAMS System Security Plan (SSP) guidelines.

Assumptions:

a. PACE assumes that all work is performed onsite and that all hardware and software engineering tools are all GFE.
b. The System Security Plan (SSP) for the IDAMS servers fall under a single Agency security plan. PACE will provide modifications as necessary to the previously provided appendix that is part of the overall Agency SSP. The appendix included such items as environmental, access control and the like relating to center specific elements.
c. GRC has determined that the level of effort to properly implement and support the IDAMS project will require two full WYE resources. But due to limited funding, 1 WYE will be provided for this effort. GRC management has recognized this short fall and has addressed the local GRC support in the AGENCY IDAMS Memorandum of Understanding (MOU) that a best effort will be provided for this project. Subsequently PACE will provide a best effort in support of this work and work with the technical monitor to prioritize the IDAMS activities.
d. IDAMS hardware and software maintenance costs are covered by the Agency as described in the IDAMS Concept of Operations document.
e. The cooperation of center network and system administrators will be necessary to coordinate and facilitate the proper scanning and application mapping required by the IDAMS agency tool.

f. The addition of IDAMS remote probes specified within the work may require additional support and funding if required.

IT Support for Data Center Operations (SOW Reference 3.3)

Overall Objectives:

Data Center Operations:
Operator's duties include a wide range of responsibilities and consist of one and a half shifts of operator coverage for a twelve hour day, Monday through Friday. Weekend, holiday, and extended daily coverage may occur if requested and approved by NASA TM and PACE project managers, as in the case of Power failure, chiller problems, system/server maintenance, and special projects.

Specific Work Requirements:
Operators physically monitor several systems for malfunctions, error reporting and/or correction to support an expeditious resolution. These include Networking, Hosting Services systems, printers, servers, and controllers. A portion of the operators` task of monitoring the systems include continuous observation through system monitoring of servers to ensure that they are up and actively connected to the network, walking over to the server area, and physically checking the status of all servers, CPU and UPS units. On a variety of operating systems, operators insure the systems are fully functional, storage space is at the proper availability level, and no errors have occurred by performing documented checks that have been established for each system.

Operators verify the time displayed on the two central time source clocks, and verify that the two clocks readings are identical and current. Operators are responsible for contacting various personnel, both software and hardware support staff when problems occur. Operators will assist technicians by rebooting, monitoring, and additional requested activities required by technicians in maintaining equipment safety, security, and execution. Power up and down various systems` equipment located in building 142 during scheduled maintenance or in case of emergencies. Computer Room Physical Space: Operators make safety walk-throughs of the Room 160 and 167a Data Center facilities taking note of potential issues with floors, equipment and cooling, and taking the correct actions for notification and rectification. Operators assist the Data Center Facility Manager with the configuration, layout design and documentation of the Data Center within Room 160. This documentation includes the "re-gridding" of the Data Center floor layout and documenting the results of the on-going circuit trace project.

Printers and Plotters:
Operators are responsible for breaking down prints and plots inside of Room 160. These printers and plotters are used lab wide. Operators remove printouts from machine, separating and delivering prints and blueprints to main copy area, loading paper and special forms, changing toner, correcting paper jams and any other problems with printers both in Room 160 and additional machines in Building 142. Day shift personnel distribute paper twice weekly, insuring an adequate supply, from the storage room to copier machines and laser printers throughout Building 142. Operation`s personnel receive various print requests, including assistance with setting up new print jobs, both within Room 160 and remote locations; status of print jobs, deleting print jobs, and resetting print queues. Operations also report problems associated with the print servers.

Data Systems Service Calls:

Operations personnel assist in answering the Data Systems Facility Trouble Reporting phone, Extension 3-8555. Data Systems are in NASA Glenn`s test facilities and carry the highest level of importance and response priority due to the nature of the test environment. Data Systems service activities are typically driven by safety concerns, cost, personnel, run schedules, or loss of critical test data. Between the hours of 7:30 AM and 6:00 PM, Monday through Friday, Data Systems technicians are required to arrive at the site of the facility within 30 minutes of receiving the call and beginning the repair process. DCIS checks are performed to track and post all facility readings; Data Systems Support personnel are notified of any discrepancies. Assist GRC community with any questions or issues related to their facilities and testing systems.

Backups, daily, weekly and monthly:
Tape backup procedures include logging on to specific system, shutting down systems, initiating backups, booting systems, pulling media and travel time to and from location of systems running backup procedures. Operators` also clean media devices, record keeping in specific log books, replacing media, initialize media and labeling when needed. When problems occur they send out E-mails and open problem reports.

Media Storage and Transportation
An on-site tape library is maintained within Room 160. Off-site backup and storage is also required for selected tape medium at the Plum Brook bunker storage facility in Sandusky. This involves boxing identified tapes, transporting to Sandusky, and maintaining the off-site storage library. Regular trips are scheduled weekly, but additional trips may be taken if a situation warrants immediate retrieval of specific data/tapes.

Data Center Remedy Queue Monitoring and Support
Operators will monitor the Data Center remedy queue tickets generated from the Enterprise Service Desk. They will assist in the development and posting of knowledge articles and keywords in support of new Data Center functions as they are defined. Remedy tickets will be reviewed and forwarded to the responsible Data Center personnel for resolution in needed. The operators will also assist in assigning, updating and closing the remedy tickets as appropriate.

Media Sanitation and Destruction
Operators will follow the approved Media Sanitation and Destruction guidelines as outlined by the ESAS Hosting systems security plan. This applies to all physical hard drives and tape media that the Hosting System administrators designate for destruction.

Computer Configuration Board (CCB)
Participate in meetings and communications to coordinate all computer hardware and software system upgrades and maintenance activities for GRC involving OCIO, ACES, CS, and SSC personal and their responsible tasks. This involves documenting known work areas, following through from identification, status, and completion dates. Invite individuals to attend meetings whom are not regular attendees to insure awareness of activities that may affect their task. Maintain direct communications with Headquarters to keep them informed of all GRC Network and Computing systems activities using E-Room technology.

33.01 – Computing Services

Computational Science Application Support

Computational Science Application Support (SOW Reference 3.2 and 3.3)

Summary:
The contractors must work with both Government engineers and industry partners to develop system analysis software for aeronautic and aerospace systems. They will work with engineers to establish software requirements, and translate these requirements into design specifications. The contractors will further implement and assist in testing the resultant designs. They will provide system and user documentation as well as provide administration of software development tools and systems used in the development environment.

Multidisciplinary Analysis & Optimization (MDAO) Development (SOW Reference 3.2 and 3.3)

Description

Overall Objectives:
The Contractor shall support the Aeronautics Research Mission Directorate and the Exploration Systems Mission Directorate in advanced Information Technologies (IT) disciplines as applied to the Multidisciplinary Analysis & Optimization (MDAO) project and the Numerical Propulsion System Simulation (NPSS).

Specific Work Requirements

The Contractor shall:

1. Develop and verify software for MDAO concentrating on the infrastructure: including requirements definition, analysis, design, implementation, and testing.
2. Assist with developing high-fidelity, multi-discipline capabilities.
3. Provide contributions to system, user, test, and programmer documentation. This includes, but is not limited to, the following: requirements definition, verification and validation objectives, use cases, analysis, object models, interaction diagrams, design specifications, test plans and scripts, and self-documenting code.
4. Provide technical writing support for the MDAO software development and related programmatic areas as deemed appropriate. Documents will be made available in formats such as PDF and Web-based as needed.
5. Provide administration for the software development tools. Project specific administration includes: collaborative workspace environment, administering and customizing software configuration management tool, administering and customizing problem tracking tool, administering and upgrading software operating systems, compilers, tools, and libraries, Web-based programming for project Web site, and firewall/security/encryption to protect proprietary data.
6. Provide consultation and support for NASA specific NPSS needs.

Assumptions:
It is assumed that all work is performed onsite at GRC and that the software engineering tools are all GFE. Telecommuting as needed is acceptable. It is also assumed that certain administrative support functions (e.g., document copying and distribution) are ODCs.

33.02 – Facilities Division IT Support

Facilities (SOW Reference 3.2, 3.3)

Background:
The contractor shall provide information technology (T) services to the Facilities Division at the NASA Glenn Research Center (GRC), Cleveland, Ohio. These IT services are required by the Facilities Division for the efficient management of the GRC campus repair, maintenance and capital improvement programs. In addition, this division is responsible for overseeing the management of office, laboratory, and general service space throughout the campus. Consequently, there is a significant data collection process required to maintain up-to-date facility occupancy, condition rating, and usage data in order to accomplish this space management task.

FD Web Based Application Development and Maintenance (SOW Reference 3.2, 3.3)

Web applications will provide access to several engineering and facilities management tools. There are currently five custom applications that are in development and/or maintenance: FPMD, FINS, Lessons Learned, Facilities Portal and FD Application Administration. There are also two Commercial "Off-the-Shelf" applications: Archibus and MapGuide which require support related to configuration, network connections, database management, and configuration control. Design, Configuration, Development, and Maintenance of all of FD's applications are on-going.

Applications:

1. **Facilities Project Management Database** – FPMD is our primary tool for managing our engineering and construction contracts. The tool is primarily a web based front end to a database which is an integral part of how we manage, capture, and document our construction, engineering, and COF projects. The system is hosted on servers owned and managed by Code FD in building 21. The Contractor shall be responsible for the daily application and database development, system support, and maintenance. The Contractor shall provide Data Base Administration, Server Administration, and maintains our IT Security Plan. This database is an SQL Server data base.

2. **Facilities Incident Notification System** – FINS is a web application that has been developed to provide rapid notification to the GRC public regarding GRC incidents that have been identified as FD responsibilities. Notification will be provided by web based news feeds to targeted groups, the FD website, and the Facilities Portal. The system is hosted on the FD server as a module of the Facilities Portal and the data is also hosted as a module of the Facilities Portal database. The Conractor is responsible for the daily application and database development, system support, and system maintenance.

3. **Lessons Learned** – Lessons Learned is a web application that has been developed to capture and track valuable insight that may have been uncovered during issues encountered and solved during design, engineering, construction or maintenance activities that should be studied, evaluated, and possibly applied to our contract

documents, processes, procedures, or manuals to assure that a similar issue does not happen again. This tool will be used to track and analyze data collected during these instances and eventually aid in the management of Quality Assurance.

4. **Facilities Division Portal** – The Portal is a web application that currently functions as a front end to our facilities database used to manage GRC facilities data. The database is hosted on a server owned by FD located in building 21. The Contractor shall be responsible for the daily application and database development, system support, maintenance. This database is an SQL Server database.

5. **App Admin** – FD Application Administrator is an application used to associate users to the applications they can access. All FD applications are requested through NAMS as "FDApps". When logging in, the user is directed to the FD Menu which shows the specific application to which they have access. The application associates the user to the application then pushes the user into the appropriate application user table.

6. **Archibus** – Archibus is a software tool that will be used to build a Computer Aided Facility Management system (CAFM) to leverage facilities data providing FD with a robust tool for improved management of GRC's facilities. Archibus links facilities data to graphic representations of our building plans and provides tools for data trending that can aid us in facilities planning, move planning, energy management, maintenance, and other typical facilities management functions. The tool is web based and can be made available to everyone at the center providing a valuable resource for communicating all kinds of facilities related data such as safety permits, evacuation plans, fire protection plans, and occupancy plans as well as other safety, planning, maintenance, and space utilization data. This database is an SQL Server data base

7. **MapGuide** – MapGuide is a web-based platform that is under development at GRC as part of a GIS initiative. It features an interactive map viewer that will allow those doing Facilities work to drill down on a map from the center level to details in buildings and grounds such as pipes and electrical wiring.

FD Web Site Development and Maintenance (SOW Reference 3.2.3)

Currently there are three Web sites that support FD: the FD Web, the PSO Web, and the FD Intranet. There will be continued need for the technical support necessary to implement small changes or corrections to each web site in a prompt manner as required. These changes would typically require simple things like making corrections to information or posting or removing documents. Additionally, there is a need for access to the technical support necessary to build larger changes to the web site in both content and functionality. Small changes should be completed quickly and may only occur one or more times a month while larger changes may be required as a result of organizational changes, changes in mission, or in support of major projects.

It should be noted that front end administration, management, and operation of both Archibus and MapGuide will be provided by Code FD as the system used to manage GRC's Facilities. FD will be responsible for building, editing, and updating the data in both systems. It would be expected that this contract would be responsible for providing the support necessary to maintain and manage the data structures behind both applications.

Web sites:

1 **Facilities Division Web site** – The FD Web site is a static website that provides information about the Facilities Division to the general GRC public. The Contractor shall be responsible for the web site's development, maintenance, and administration.

2 **PSO Website** – The PSO Web site is also a static website that provides information about the PSO systems and is also available to the general GRC public. The contractor shall be responsible for the Web site's development, maintenance, and administration.

3 **Facilities Division Intranet** – The FD Intranet is the home page providing access to the Division's web-based applications. There is an application menu that is generated for each user based on their roles: Facilities Project Manager, Space Manager, Building Manager, etc. It also provides access to a variety of public documents of relevance to the Division. For example, there are links to Division incident communication memos, safety documents, maintenance documents, and all-hands presentations.

FD Software License Administration and Management (SOW Ref 3.2.9)

There are several shared technical software packages that are critical tools in the execution of the mission for the FD. This shared software is generally made available through the annual purchase, installation, and management of licenses or prescriptions that are installed on a server and made available to FD staff. Generally each will require periodic configuration and installation of software updates and version releases. Sometimes these updates and version releases require configuration or set up at the desktop level. Note that one or two of these shared tools use USB "Keys" or "Dongles" to manage their licenses. The contractor shall provide installation and support for the FD division software that resides on servers. The current packages are:

1 **Facilities Division Software** – The Facilities Division uses software in support of their mission of managing GRC's facilities such as: Excel, Word, Access, Adobe Acrobat to name a few. There is a need for access to a robust tool to edit and/or modify images which are becoming an important tool for communicating in today's digital world. There is no need for a copy on everyone's desktop but we should look at the possibility of sharing a copy or Photoshop. The Contractor shall provide installation and support for the FD division software that resides on servers. The current packages are:
2 **AutoCAD** – AutoCAD is the primary engineering and drafting software used by FD to create and read engineering documents. Most of the engineering documents created by FD contracts for Design and Construction are created and edited with AutoCAD software. Code FD staff both civil servants and contractor use GRC's shared AutoCAD licenses which are currently hosted on a server operated by Code V.
3 **Revit** – FD has eight licenses of Revit Architecture/MEP/Structures that are shared from one of our servers. These licenses are shared by all of GRC's Architects and Engineers, both civil servants and contractors, supporting FD.

The eight licenses allow the simultaneous use of eight instances of Revit Architecture, Revit MEP, Revit Structures, or any combination of the three.

4 **SPECSINTACT** – The Specsintact System is really a combination of database and editor that is used to edit and manage our engineering specifications for our construction projects. The Specsintact system is hosted on the FD Server and the specifications created with this system are a critical part of the FD Engineering Documents. FD engineers pull and mark up sections from the system for their projects and submit them to one of two SGT employees that have the permissions necessary to allow them to create a project specification document and update each section as submitted.

5 **Archibus** – FD purchased the Archibus software at the end of FY11. FD has completed the process of loading Archibus onto the server and we continue tweaking the configuration of Archibus its ability to talk to FD databases. Archibus is expected to be in production mode at the award of PACE IV.

6 **AutoCAD Civil 3D** – Currently FD has 5 individual seats of AutoCAD Civil 3D and they are managed and supported by the Civil staff.

7 **Autodesk MapGuide** – The Civil group uses one copy of MapGuide which is configured on one of the Virtual Servers. At this point MapGuide is completely operating in a Development environment and access is restricted to a select group. Eventually we will need to set up a Production Server for MapGuide to offer lab wide access to the MapGuide system.

8 **ESRI Agency License** – Currently GRC uses four (4) agency licenses of ESRI.

9 **Auto Turn** – This software is hosted on the server and requires an annual subscription. FD currently has two (2) licenses.

10 **Applied Flow Technology (AFT)** – FD currently has one copy of this software with one dongle. The software and dongle are on one of the servers and provides shared access to one concurrent user.

FD Server Administration and Management (SOW Reference 3.3)

The Facilities Division currently owns three (3) physical servers located in Building 21 Room 223. Using Windows Server and VMWare these three physical servers host a total of eight VM servers which support various client/server and web-based applications. These three servers also host an assortment of file shares supporting various groups and projects. The VMs and file shares have been moved among the physical servers over time and may not currently be on the physical servers on which they originally resided. The Contractor is responsible for the configuration, administration, and maintenance of these servers. This includes ensuring the IT Security requirements are met, updates to application and operating system software, physical maintenance and replacement of hardware, and data management through data storage and backup/restore services.

Physical Servers in Building 21

- Server 1 (Windows Server 2003 & VMWare) (VM1) (File Shares)
- Server 2 (Windows Server 2003 & VMWare)(VM2, VM3, VM4)(File Shares)
- Server 3 (Windows Server 2008 & VMWare)(VM5, VM6, VM7, VM8)(File Shares)

One physical server is located at Plum Brook Station (PBS). The PBS server hosts a single VM server which is currently inactive. This VM is intended to be used should one of the other machines fail and there is need to set up a temporary emergency backup instance or an application to support operations. This physical server also hosts the remote service for backup to the Facilities Division systems per the security plan.

Physical Servers at PBS

- Server 4 (Windows Server 2003 & VMWare) (VM) (Backup Data)

VM Services (SOW Reference 3.3)

Currently FD has eight virtual servers on three physical servers supporting FD applications. This may require modification and/or adjustment as FD moves forward with the release of the Archibus application until FD can effectively shut down the Portal application. The planning, management, and maintenance of the equipment and hardware necessary to support our IT needs will require ongoing oversight and the ability to be flexible with the size and number of the VM's need. The Contractor shall be responsible for future migration of the servers from Building 21 to Building 142. This new contract will be solely responsible for the configuration of these servers, the network connections that keep things operating and the software necessary to support the FD IT operations as well as provide the assurance of operation and access that are required.

- **VM Servers (Current Configuration):**
  i. **VM1** – This VM server hosts both the FD Test and Production environment for the FD SQL Databases. (Windows Server 2003 & SQL Server 2000)

  ii. **VM2**– This server hosts the FD Development Application Server (Cold Fusion 8 and Web Server)

  iii. **VM3**– This server hosts the FD Development SQL Databases (Windows Server 2003 & SQL Server 2000)

  iv. **VM4**– This server hosts the Production MP2 SQL Database (Windows Server 2003 & SQL Server 2005). MP2 is a legacy system and is still available. I do not know how long the system will be kept up and running.

  v. **VM5**– This server hosts the Archibus Application Server (Windows Server 2008 & Tomcat)

  vi. **VM6**– This server hosts the Archibus SQL Database (Windows Server 2008 & SQL Server 2008)

  vii. **VM7**– This server hosts the FD Test and Production Applications Server (Cold Fusion 8 and Web Server)

  viii. **VM8**– This server hosts the MapGuide Application Server (Windows Server 2003)

Facilities Division IT Security Plan (SOW Reference 3.7.5)

The Contractor shall support and maintain an IT Security Plan for Code FD.

Facilities Division File Sharing (SOW Reference 3.3)

Currently FD provides numerous File Shares on FD servers in support of GRC's projects. Many projects require sharing data with people both inside NASA's fire wall as well as outside NASA's fire wall. These file shares may require access by project teams composed of civil servants, contractors, businesses, and other agencies. The Server Administrator works with the Project Managers as they set up their teams defining the setup of each File Share as well as manage permissions and access. The Contractor shall provide support and administration for File Sharing on the FD servers.

Contractor Support / Personnel (SOW Reference 3.9.2)

Technical POC for all of FD's IT Systems and Services – The Contractor shall provide a single Technical POC for all of Code FD's IT Systems and Services. This POC would work directly with Code FD leading the planning and development of FD IT systems and services. This POC must have direct access to both the application code and FD data bases with the ability to work as necessary to address any emergency that may require immediate attention. Additionally, it is expected that this POC would need access to the ColdFusion Administrator as well as the IIS for creating and managing FD's web sites as needed.

Data Base Administrator - As required by FD's IT Security Plan a Database Administrator is required. The DBA must have the ability to modify and edit applications and data base structures as needs change as well as provide emergency support should an error in an application or data base occur.

Server Administrator - As required by FD's IT Security Plan a Server Administrator is required to manage FD's servers. The Contractor shall provide the support necessary to modify and edit the configuration of the equipment and network settings of FD server systems as necessary to support FD applications and data base structures. This may require changes in the configuration of the servers, the network connections, and/or other related hardware, software, and devices as necessary to support FD systems and maintain operations.

Developer - Developers will be responsible for full life cycle support of the FD web sites and web applications. The current FD web presence is in an on-going maintenance mode that may require application code modifications and enhancements, database design changes, posting of documents and content, and general maintenance of the ColdFusion code. Future requirements may involve design and development of new functionality or major changes required to support FD's operations.

Single Point of Failure Concerns - Currently FD's Applications and databases are vulnerable to the possibility of a single point of failure should any one of the IT contract personnel become incapacitated or unavailable for any reason. The Contractor shall provide appropriate back-up capability to cover for absent personnel.

Skills needed to Support FD IT Systems and Applications

1. SQL Server 2008 Configuration and Administration
2. Windows Server 2008 Configuration and Administration
3. Internet Information Server 6.0 and 7.0 Configuration and Administration
4. Tomcat Server Configuration and Administration

Web Site and application Development possibly utilizing:

   a. SQL
   b. ColdFusion MX
   c. Cold Fusion Administrator
   d. Javascript

Third party add-ons:

   a. ChartDirector
   b. File Explorer
   c. CKEditor and/or
   d. CKFInder

5. Tom Cat Server Configuration and Administration
6. Possibly Windows Server 2000 and 2003 Administration
7. Possibly SQL Server 2000 Configuration and Administration
8. Archibus Configuration & Administration (Desirable)
9. AutoCAD Configuration & Administration (Desirable)
10. Revit Configuration and Administration (Desirable)